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THE GARDEN CALENDAR.

A radio discussion by W. R. Beattie, Bureau of Plant Industry, delivered in the Department of Agriculture period of the National Farm and Home Hour, broadcast by a network of 48 associate NBC radio stations, Tuesday, October 31.

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Hello folks: Did you ever stop to consider what is happening in your garden or orchard during the winter when there are no crops growing? I mean what is happening in the soil itself and if you are gaining or loosing fertility. The chances are you are losing fertility from your soil and nothing being done to prevent this loss. Some 20 or 30 years ago enterprising market gardeners kept a man and team busy all winter hauling manure from city stables and piling it in compost heaps and later spreading it and working it into the soil of their truck patches to maintain fertility. We no longer are able to get a supply of manure, in fact some of you southern gardeners never were able to get an adequate supply of manure so depend almost entirely upon commercial fertilizers. But it has been found that commercial fertilizers alone will not turn the trick and we want organic matter or humus in our soils.

Experiment station workers in a number of the States started some 25 or 30 years ago to conduct experiments to determine the best methods of maintaining soil fertility in the absence of an adequate supply of manure. The Pennsylvania State College has just published a bulletin entitled "Twenty-five Years of Orchard Soil Fertility Experiments." Among the results drawn from these experiments are first, that the soil fertility of an orchard soil is more than its plant food content. It involves the very nature of the soil, its depth, previous treatment, the use of fertilizers and manures and the cover crops grown in the orchard. Another point, fertilizers are only part of the problem of soil fertility and improved yields come chiefly through changes in the organic content of the soil. It was found that the kind and quantity of organic matter in the soil very largely determines its capacity to absorb and hold water which means that the ability of the orchard to withstand drought depends largely upon the humus content of the soil.

The folks at the Geneva, New York Station have recently published two mighty fine bulletins, one on the "Relations Between Orchard Soils and Cover Crops," and the other "Some Facts About Soil Management in a New York Orchard." Any of you folks who are interested in orchards will find the information contained in these two bulletins a big help in managing your orchards, especially as regards keeping up fertility, preventing waste of plant foods, water-holding capacity of the soil and other factors so essential to the production of good fruit.

The principles laid down in these bulletins apply in a way to all of our fruit and vegetable crops and the more we study the matter the more apparent it becomes that if we're going to stay in the game and have profitable orchards and gardens we've simply got to adopt some working plan whereby we can increase the organic matter content of our soils and keep it at a high level. You folks who have taken land out of cotton, wheat, and other standard crops under your contracts with the Government are encouraged to plant soil improvement crops on this land,

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then when the time comes round, if it does come, when we need these acres in field crops, the land will be in good condition. Some of us are having to scratch gravel mighty hard to make ends meet anyway and it is my thought that we will be away ahead of the game if we can get at least a part of our land on a higher plane of production. In the case of an orchard where we are working on a long-time basis it is all the more important that we improve the soil. You can't move over to another piece of ground with your orchard next year because the orchard just stays right there. You can do that with corn or potatoes but there is no rotation scheme for the orchard except for the orchard cover crops that you grow in the orchard.

In the New York bulletin on the "Relation Between Orchard Soils and Cover Crops," it is shown that the loss of nitrogen as a result of soil leaching can be almost entirely prevented by keeping the land covered at all times with some such crop as alfalfa, clover or even with a non-legume. This is quite possible in the orchard but not so in the garden and market gardeners who are working on a limited acreage have a real problem to provide for the growing of soil-improving crops. You southern gardeners can grow soil-improving crops in midsummer, between your spring and fall crops of vegetables, but you northern folks must rely mainly upon such winter cover crops as rye, rye and vetch, wheat and barley. While the legumes such as clover and alfalfa have a decided advantage over the non-legumes, yet the non-legumes add humus and they also prevent the serious loss of nitrates from the soil by leaching.

The sum total of my story today, folks, is to keep your garden and orchard soils covered with some growing crop at all times, especially during the rainy seasons when the leaching of the soil nitrates and other plant foods is greatest. It is not too late this season to plant rye in many sections, and since we can no longer get an adequate supply of manure with which to maintain the fertility of our soils, why not grow green manures. I am sure it will prove the easiest thing to do anyway. The great need is for more and better organic matter or humus in our orchard and garden soils and the most practical method is to grow soil improving crops. Use manure on your land if you can get it, but keep the cover crops growing.

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